CONDOM USE IN UGANDA AND ZIMBABWE: EXPLORING THE INFLUENCE OF GENDERED ACCESS TO RESOURCES AND COUPLE-LEVEL DYNAMICS

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1 INTRODUCTION

An estimated 5 million new HIV/AIDS infections occurred in sub-Saharan Africa in 2003, most the result of heterosexual transmission (UNAIDS, 2003). Strategies to prevent the spread of HIV have focused on raising awareness of risk factors, promotion of condom use, reduction of numbers of sexual partners, treatment of sexually transmitted diseases (STDs) and postponement of first sex (Nduati and Kiai, 1997; Kim et al., 1997; Marcus, 1993). There is, however, an increasing appreciation that behavior and choices are shaped by not only what individuals know, but also by larger contextual factors that may limit or promote levels of personal control (Caldwell et al., 1999; Cohen and Trussell, 1996; Rosenstock and Strecher, 1994). It is therefore important to understand the wider sociocultural and economic forces, as well as the patterns of interpersonal power relations, that drive women's and men's susceptibility to HIV infection. The sociocultural construction of gender emerges as a key factor in these processes.

The sociocultural construction of gender "structures all aspects of life" and is best defined as a "set of criteria by which we all learn to distinguish 'femaleness' and 'maleness,'" aside from obvious biological differences between women and men (Greenhalgh, 1995). Gender norms shape the lives of both women and men in fundamental ways, determining their sense of selfhood and identity, cutting across class and other social divisions. At the same time, the sociocultural construction of gender is not a timeless universal but constituted within historical, social, and life-cycle contexts, with an astonishingly wide-ranging variability across and within cultures (Standing, 1991; Di Stephano, 1990; Annandale and Clark, 1996). Notwithstanding this cross-cultural variation, an important consequence of most gender constructions is the justification of hierarchy between the two sexes. Most things feminine tend to be devalued, and in large parts of the world women have less access to a variety of economic, social, and political resources than men (Di Stephano and Lorber, 1998).

Health and illness are gendered phenomena characterized by marked inequalities between women and men (Okojie, 1994; Vlassoff, 1994). Although a subject of limited systematic research, studies have shown marked differences in women's and men's biological, psychological, behavioral, and social vulnerability to ill health (Verbrugge, 1985, 1989; Celentano et al., 1990; Lundberg, 1990). Given the often heterosexual dimension of the infection, the HIV/AIDS epidemic is particularly affected by gender systems and their inherent inequalities. It has been argued that gender systems in sub-Saharan Africa promote the spread of HIV through a variety of routes including *inter alia*: masculine identities that support dominance, sexual freedom, and sexual satisfaction (Schoepf, 1998; Ssali et al., 1992); inequitable material resource allocation, meaning widespread female poverty and economic dependence upon men (Kaleeba et al., 1991); and a complex interplay between the norms and reality of partnership formation which implies both multiple sexual partners and barriers to condom use due to ideals of trust, honesty, and commitment within unions (Varga, 1997).

Despite this recognition, there has been little systematic investigation of the routes through which the sociocultural construction of gender actually influences risk-related behaviors or the factors that might encourage changes in elements of gender systems that promote safer behavior vis-à-vis HIV/AIDS. In particular, we know little about the ways in which gendered inequalities in access to resources and couple dynamics ultimately influence the adoption of protective behaviors. Moreover, most of the evidence is based on small-scale or qualitative studies, making it difficult to assess the generalizability of findings or the size of the effects.

The present analysis uses national-level quantitative survey data from two African countries to examine the ways in which gendered inequalities in access to resources and gendered patterns of interaction between partners are related to the adoption of protective behavior, specifically condom use.

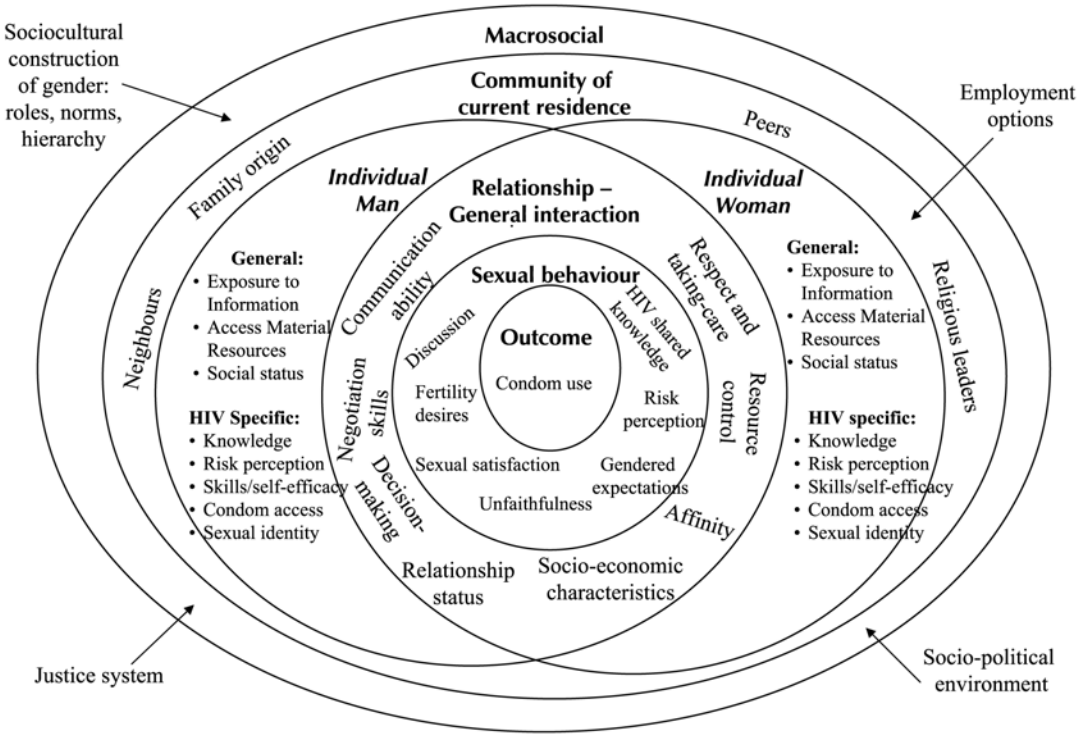
2 GENDERED ACCESS TO RESOURCES, COUPLE DYNAMICS, AND CONDOM USE: A CONCEPTUAL FRAMEWORK

Explanatory models of health behavior, such as Rosenstock and Kirscht's Health Belief Model (1974) and Rogers' Protection Motivation Theory (1983), have traditionally focused on the idea that individual cognitive factors directly influence the motivation to protect oneself and thereby actual behavior. The assumption of individual control over health-related behavior, implicit in these explanations, is untenable when attempting to explain sexual risk-taking (Rosenstock and Strecher, 1994). Sexual behavior varies; it is, by its very nature, a product of interaction between two individuals and not the result of individual action and decisions only (Ingham and van Zessen, 1997). The same individuals may interact differently with another set of partners, producing a separate set of behaviors. The interaction between a particular couple is influenced by characteristics of the individual partners, who, in turn are located in a wider social milieu. Figure 1 illustrates the various levels at which the couple's interactional, individual, and sociocultural variables may act to influence sexual behavior.

The outcome of interest for the present study is condom use. Compared with other potentially protective behaviors, such as avoidance of high risk sexual partners, condom use is a simple outcome to measure. Furthermore, for individuals who are within regular unions where sexual intercourse is an expected part of the relationship, it is the only feasible protective behavior.

In Figure 1, condom use (Layer 1) is surrounded by five outer layers. Layer 2 depicts the sexual interaction between the couple, which in turn is located within a general relationship between the two partners (Layer 3). Characteristics of the individual partners constitute another outer layer (Layer 4) and the larger macrosocial environment the final outer layers (Layer 5 and 6). All the layers interact with each other in multiple and complex ways. The sociocultural construction of gender is seen to permeate all layers in the model. This framework forms the conceptual backdrop for the present analyses. Relationships between its various components, in particular those between gendered access to resources (Layer 4), couple-level dynamics (Layer 3), and condom use (Layer 1) are analyzed.

Figure 1 Dynamics of sexual behavior: Influence of individual, community, and macrosocial variables on the sexual behavior of couples



Adapted from Rademaker et al., 1992; Ingham and van Zessen, 1997

Looking at Figure 1, the outermost layers (Layer 5 and 6) represent the larger macrosocial environment, which provides the framework within which the microlevel gender ideology operative at the couple level is anchored. A key aspect of this layer is the social construction of masculinity and femininity that prizes obedience and submission in women, while giving men the freedom to form multiple sexual partnerships. The latter are in fact a symbol of manhood, power, and wealth (Schoepf, 1998). Additional factors include poverty, a result of a colonial legacy, quasi-totalitarian regimes, burdensome debt-services, and structural adjustment programs. These have resulted in young people having to migrate in search of jobs, with resultant disruption of families and increased opportunity for extra-marital/partner sexual contacts (Collins and Rau, 2000).

The next layer (Layer 4) addresses individual-level characteristics that each partner in a sexual relationship brings to the interaction. Important among these are employment options, access to material resources, education, and information. Notwithstanding women's traditional involvement in food-production activities in sub-Saharan Africa, recent research highlights joint systems of agricultural production that commonly privilege men over women (Whitehead and Kabeer, 2001; Bryceson, 1995; Vierich, 1986). Furthermore, women's income-generating opportunities outside the agricultural sector are often limited by the wider gender structures to low paid, informal, irregular work (Masika and Joekes, 1996).

Gendered access to material resources and female poverty have been highlighted as important factors contributing to the HIV epidemic in sub-Saharan Africa (Schoepf, 1998). While commercial sex is an obvious gendered consequence of poverty (Kaleeba et al., 1991; Schoepf, 1998), sexual relationships outside a mainly monogamous marriage are also a common economic strategy among women in Uganda (Kaleeba et al., 1991; Ogden, 1996). Sexual clientship can also be a condition of employment or promotion for working women (Schoepf, 1998). The exclusion of women from secure resource flows may limit their options regarding sexual behavior, encouraging multiple partners and condom-free sex.

The other aspects of Layer 4 that have important implications for condom use are education and exposure to information, in particular HIV-related knowledge. Governments in a large number of sub-Saharan countries have conducted health education campaigns to increase HIV awareness. The extent to which this information reaches its target depends upon exposure to various media, itself largely determined by education and socioeconomic circumstances. Access to education and information on HIV/AIDS varies importantly by sex. In much of sub-Saharan Africa, women have lower levels of education and literacy compared with men (UNICEF, 1998). Surveys conducted during the early stages of the epidemic in Uganda show women also had lower rates of exposure to HIV-related information, particularly through the formal mass media campaigns (Foster and Furley, 1989; Anderson et al., 1990).

As expected, research to-date shows a positive relationship between education and HIV-related knowledge (Gregson et al., 1998). Whether this knowledge actually translates into protective behavior is, however, unclear (Akwara et al., 2003; Kirunga and Ntozi 1997; Smith et al., 1999; Grosskurth et al., 1995; Quigley et al., 1997; Senkoro et al., 2000; Kilian et al., 1999). The assumption that education may facilitate changes in behavior in response to health promotion (Fylkesnes et al., 1997) is also unsubstantiated. Gregson et al. (1998) found in Zimbabwe that knowledge about AIDS is weakly associated with condom use, while Akwara et al. (2003) found no relationship at all in Kenya. Educated, higher socioeconomic-status individuals, particularly men, may have greater disposable income and lifestyles that increase rather than decrease the risk of exposure to HIV (Berkley et al., 1989; Dallabetta et al., 1993; Hargreaves and Glynn, 2002; Quigley et al., 1997).

Cross-sectional surveys show no major differences in the relationships between education and HIV infection rates between women and men. However, the pathways through which the statistical relationships act may be quite different. While educated, well-placed women may have lifestyles comparable to similarly placed men, it is also possible that they are at an increased risk because of their husband/partner's behaviors (Schoepf, 1998; Hargreaves and Glynn, 2002). A positive relationship between a woman's risk of HIV and her husband's education is well documented (Allen et al., 1991). Gender values of male dominance may override any postulated protective effects of women's education and knowledge.[1]

Education, by virtue of the cognitive skills it imparts, can also have an impact on health-seeking behavior and exposure to health interventions (Kilian et al., 1999), as well as interpersonal communication. Furthermore, educational attainment may impart status and confidence, thus

[1] It is, however, worth noting that because of the long latent period of HIV infection, the HIV positive cases today may have been infected before HIV-related health education campaigns, including sex education in schools, were instituted. It is therefore possible that these messages, which are commonplace now, may have their first impact amongst the most educated today and that the association between schooling and HIV status may change over time.

shaping the gendered identity of an individual. In contexts of low educational achievement for women, one might therefore expect higher levels of female education to be associated with more egalitarian relationships between couples, reflecting a lower degree of male dominance and greater female involvement.

Though the relationships between employment, education, information, and access to material resources have been documented in small-scale studies, there has been little systematic study of how they influence sexual behavior, and in particular, condom use in the context of gender relations. The present analysis, therefore, includes an exploration of the role of women's and men's employment, educational level, exposure to sources of information, and HIV-related health knowledge on condom use, both within and outside of marriage.

Layer 3 in Figure 1 shows the general relationship of the couple. The model recognizes that condom use is dependent on the type of relationship between the man and woman. Our empirical analysis looks for differential behavior in marital/cohabiting and non-marital sexual interactions. Although common-law relationships with a steady boyfriend are socially recognized in sub-Saharan Africa, they often primarily constitute an economic survival strategy for women (Schoepf, 1998). Similarly, polygamy may be an entrenched cultural institution, but women in such unions are disadvantaged since they have to compete for their husband's resources (Brahmbatt, 2002). These aspects of relationships add an element of precariousness in the relationship that may constrain a woman's ability to negotiate contentious issues, including condom use.

Additional aspects that may have an important bearing on condom use include the level of couple communication, patterns of decisionmaking, and resource control. Gendered values that prize female submission also act to exclude women from decisionmaking processes in other aspects of their lives. This exclusion is believed to be the key underlying cause of women's limited access to material and social resources (Correa and Reichmann, 1994). This exclusion may also result in limited decisionmaking involvement around sexual issues. An important aspect of couple interaction that may determine condom use is the extent of knowledge of HIV and perception of risk that each of the partners holds and the degree to which this information is discussed and shared. Sharing of disease information (HIV or other sexually transmitted infections [STIs]) with spouses or partners has been found to be uncommon (Morgan et al., 2001; Meursing and Sibindi, 1995).

The inner-most layer, Layer 2 (Figure 1) refers to sexual interaction of the couple. Condom use is a male-controlled activity over which women have limited control (Connel, 1985). Married/partnered women in particular face extra challenges when negotiating condom use because of the fear of being suspected of promiscuity by their spouses/partners (Schoepf, 1998; Meursing and Sabinde, 1995; Marcus 1993). Communication about sexual issues is closely interwoven with gender norms and expectations that prevent women from voicing their concerns (Dixon-Mueller, 1993; Blanc and Wolff, 2001).

There has been little exploration of these relationships, in particular of the routes through which couple dynamics affects condom use. Our analysis explores the role of the sociolegal status of the sexual relationship, gender values, levels of couple communication, patterns of decisionmaking, and resource control on condom use.

3 METHODOLOGY AND DATA

Because gender norms and values are characteristics of social systems rather than individuals (Mason, 1993), a comparison of patterns between two populations was felt to be useful, in addition to an exploration of predictors within each population. Two sub-Saharan countries with significantly differing HIV prevalence were selected. Uganda has successfully reduced its adult prevalence of HIV to 5 percent, while Zimbabwe, which has been severely affected by AIDS, has an adult prevalence of 25 percent.

The data are drawn from the Demographic and Health Surveys (DHS) conducted in Zimbabwe in 1999 and in Uganda in 2001.[2] The surveys used a two-stage sample design to obtain a nationally representative sample of households. All women age 15-49 in each sample household were eligible for interview. In addition, all men aged 15-55 in every second household in Zimbabwe and every third household in Uganda were eligible for interview. The focus of the current paper is respondents who were currently married and/or cohabiting with a partner, a total of 3,609 women and 1,239 men in Zimbabwe, and 4,675 women and 1,180 men in Uganda. A proportion of respondents in each country were matched partners, yielding 907 and 994 couples in Zimbabwe and Uganda, respectively.

The questionnaires in the two countries followed the standard DHS Round 4 formats. Beside sections on fertility and family planning issues, a whole section addressing HIV/AIDS and a smaller section addressing indicators of women's and men's gendered position were included. Two groups of variables, postulated to reflect gendered access to resources (Layer 4) and gendered couple dynamics (Layer 3) were developed.

3.1 Gendered Access to Resources[3]

Employment and occupation.[4] Employment status is commonly used as a proxy measure of access to resources (Safilios-Rothschild, 1990; Goetz and Sen Gupta, 1996), though the assumption that a woman's employment implies unconditional control over her income is debatable (Mason, 1993, 1995). The literature indicates that steady, well-paid work has a positive effect on women's lives, while informal, low-paying work does not (Acharya and Bennet, 1982). For the present analysis, we combine employment and occupation into a proxy measure of access to material resources. Both women and men were asked if they had been employed at any time in the 12 months preceding the survey and the nature of their work. Responses to the two questions were combined to create a nominal variable categorized into homemakers (not working among men), professionals/technical workers, sales and service, clerical/skilled workers, agricultural workers, and unskilled manual workers.

[2] Details of DHS survey methods and main results may be found on the MEASURE DHS web site http://www.measuredhs.com.

[3] Additional variables that were explored, but did not have significant relationships with condom use, are type of remuneration for work done, women's level of contribution to household expenditures, and justification for wife's refusal to have sex with her husband.

[4] In addition, economic status was indicated with a complex variable reflecting life-style purchase and consumption patterns meaningful in these contexts. Type of flooring material, sources of drinking water, sanitation facilities, availability of electricity, ownership of specific consumer durables, and modes of transport are used. A value between 0 and 10 was assigned to each item, a higher value reflecting greater purchasing power. The exact value assigned was calculated by using an inverse ratio of the prevalence of the specific item in the population. The final score each respondent got was further categorized into five classes: very poor, poor, middle class, and rich. These categorizations are arbitrary and are based on our understanding of the value of various items.

Exposure to sources of information. Access to information is strongly determined by class and gender. An "exposure to sources of information score" was developed to measure the extent to which women and men are exposed to radio, TV, and newspapers. A value of zero was assigned for no exposure to a radio, TV or newspaper to a maximum of two for daily exposure to the same media. The score ranges from 0 to 6.

HIV/AIDS-specific knowledge. A score was developed as a composite variable based on knowledge of HIV, specifically 1) whether the respondent has heard of HIV, 2) knows it is possible to prevent infection, 3) knows that risk can be lowered by sticking to one faithful uninfected partner, 4) knows that risk can be lowered by using condoms, 5) knows that a healthy looking person can have HIV infection, 6) knows that a mother can transmit HIV infection to her baby, 7) knows that mother-to-child transmission can occur during pregnancy, 8) knows that mother-to-child transmission can occur during delivery, and 9) knows that mother-to-child transmission can take place while breastfeeding. A score of one was assigned for each correct answer to these questions, giving a possible score from 0 to 9.

3.2 Gendered Couple Dynamics

Four measures assumed to reflect the gendered dynamics of a couple were developed. These include the status of the relationship, level of communication, resource control, and patterns of decisionmaking.

Status of the relationship. Respondents self-classified their current marital status as either "married" or "living together." Though this is a subjective measure, it is of interest to examine how reported relationship status relates to other aspects of couple dynamics and condom use. Instances of polygamy were also explored.

Level of communication. The level of communication between couples was assessed by developing a communication score based on whether the woman had discussed family planning with her husband/partner in the past year. A woman was also asked whether her husband/partner approved of a couple using a family planning method and whether his desired family size was the same as hers. A woman's ability to report her partner's opinions about these issues was assumed to reflect greater communication. A value of zero was assigned if there was no discussion of family planning issues, 1 if once or twice in the past year, and 2 if more often. A value of 1 was assigned if the woman could report her husband's approval/disapproval, 0 if not, and 1 if she could report his fertility desires, 0 if not. These scores were summed to give a score ranging from 0 to 4. An equivalent score was developed for men. The binary variable "whether HIV discussed with partner" was also included in the analysis.

Resource control. Even among formally employed women, access to and control over their wages may be circumscribed (Mason, 1995; Kabeer, 1995). The degree to which a woman has control over her income is assumed to be reflective of (and in turn influence) other dimensions of the couple's relationship. Women working for a wage were asked, *Who mainly decides how the money you earn will be used?* The responses were coded into three categories, 1) the respondent alone decides, 2) the decision is made jointly by the woman and her husband, and 3) the husband alone makes the decisions.

Patterns of decisionmaking. For the present analysis, a decisionmaking score was developed based on answers to four questions about who has the final decision over 1) large household

purchases, 2) daily purchases, 3) visits to family, and 4) friends and the food to buy. For each question, women who reported that they made the decision alone were given a score of 1, those who said it was a joint decision (with their partner or someone else) were given a score of 0.5, and those who did not participate in the decisionmaking process were given a score of 0. These scores were summed to give an index ranging from 0 to 4.

Attitudes toward wife beating. A score was developed based on summing up the responses to whether a wife should be beaten if 1) she goes out without informing her husband, 2) neglects the children, 3) argues with her husband/partner, 4) refuses to have sex, and 5) burns the food; a score of one being given for each affirmative response. Values ranged from 0 to 5. It is assumed that men or women who express lenient attitudes toward wife beating are likely to be in less egalitarian relationships than those who do not condone wife beating.

Acceptability of woman's refusal to have sex. A score of a woman's attitude regarding the acceptability of female refusal to have sex was developed. This was based on questions regarding the circumstances in which a woman can refuse sex with her husband. These circumstances included the following: when she is tired, when she has just given birth, if she thinks he has mutliple partners, and if he has an STI. One point was assigned for each circumstance in which the respondent thought that a woman could refuse sex, giving a range of possible scores between 0 and 4.

3.3 Analysis Strategy

Because the variables aimed at describing the gendered dimensions of couple dynamics in these DHS related to regular partners, our analyses were restricted to married/cohabiting men and women in each of the surveys. The first stage of our analysis involved a detailed exploration of the levels and differentials in the indicators of women's and men's gendered access to resources and gendered couple dynamics. We present only the key results from these models due to shortage of space.

In the next stage of our analysis, we modeled the predictors of condom use at last sexual intercourse with a married/cohabiting partner, and condom use at last sexual intercourse with a nonregular partner, separately for both married men and married women in the two countries.[5] Here we were interested to describe and compare the relationships between men's and women's access to resources and their reports of condom use in the two types of sexual interaction. Is there any evidence that women with greater access to resources (including education, specific HIV-related knowledge, material goods, condoms) are more likely to use condoms? Do the relationships between resource access and condom use vary depending on the sexual partner? Are the relationships found for women mirrored by the men, or are men's predictors quite different? How do these relationships vary between the two contexts, Zimbabwe and Uganda? Also, for the marital condom use models, are women's and men's reports of couple dynamics associated with condom use? Do indicators of egalitarian relations (greater communication, female involvement in decisionmaking, and resource control) predict condom use?

Finally, we examined the couples data to explore whether gendered couple dynamics have an independent effect on condom use within marital/cohabiting sex. The couples data allow us not only to examine the effects of the couple-level variables described above (communication, decision-

[5] All models were developed using the Stata 'svy' set of commands to take into account the clustered nature of the samples.

making, and resource control), but also to examine the combined effects of husband and wife individual characteristics (including education, HIV knowledge, and condom access). Therefore, although the couples data relate to a select subsample and the results cannot be generalized to all married men and women, the analysis does offer insight into the routes by which gender systems can affect condom use.

The model-building process had to proceed slowly and sequentially with detailed exploration of relationships between all measures of interest. Three factors made the analyses particularly complex: definition of the outcome measure, condom use; a diverse set of independent measures of gendered dynamics and access to resources; and the interaction effect of modern contraceptive use.

3.3.1 Measuring Condom Use

Condom use was measured as reported use at the most recent sex, both for marital and extra-marital partners. In the analysis of couple data, the male partner's report of condom use at most recent sex was taken as the outcome variable, in preference to the female partner's report or to a combined measure of both partners' reports. The results from the models for individual married men and married women suggested that the predictors of condom use were different for the two sexes. Substantial disagreement over whether a condom was used at last sex makes a measure based on the reports of both partners difficult to analyze. Among the matched Ugandan couples for whom data were available, there were 40 cases where either the man or woman reported condom use, but in only 17 of these did both partners report use. In Zimbabwe, the figure was 16 out of 67. It is possible that the two partners are not referring to the same sexual act, because spouses are not necessarily interviewed on the same day and recall of last sexual intercourse may vary between partners. Agreement between partners on use of condom at last sexual intercourse was found to be higher where partners agreed on the timing of the most recent sex. Condom use for family planning purposes may be inconsistent because couples may only use a condom during the woman's fertile period. If the majority of condom users are inconsistent users it will be difficult to find clear associations with use. Whenever a cross-sectional measure of use at last sex is used, a substantial proportion of inconsistent condom users will be classified as non-users. The characteristics shared by condom users will be spread between the two outcome groups (used a condom at last sex and did not use) and any associations diluted.

3.3.2 Model-building Process

In our analytical framework, determinants of condom use operate at several inter-related levels. Our analysis mirrored this framework by considering the effects of sociodemographic characteristics of the individual, individual access to resources, and characteristics of the couple. Regression models were built up at each level of this hierarchy and then combined into a single model. All regression models were created using the step-down approach and took into account the stratified and clustered nature of survey sample. The score variables were modeled as both linear variables and categorical variables; if they behaved in a linear manner, they were retained in the model as linear variables, otherwise they were broken down to their component parts that were then modeled separately (e.g., in the model for condom use with extra-marital partners for Ugandan women, the only component of the media exposure index that was important was newspaper reading). The factors included in the sociodemographic model were age, education, occupation, and socioeconomic status. The individual access to resources model included media exposure score, HIV knowledge score, acceptability of wife-beating score, and the variables that described household and individual decisionmaking. The third model contained the characteristics of the couple: duration of

the marriage, whether formally married, the score of couple communication, the desire for more children, and whether the respondent had discussed HIV with his or her partner. The variables that were important at each level were combined into a single model, and unimportant variables were eliminated using the step-down approach. In the sections that follow, we present only the final models.

3.3.3 Modern Contraceptive Use as an Effect Modifier

Our analyses were aimed at exploring relationships between indicators of gendered position and condom use. Women with greater access to resources and greater control within their intimate relationships are postulated to be more likely to use modern contraception. At the same time, women using a modern method of contraception are less likely to use condoms, both because they may perceive no need and because they may find it harder to convince a partner of the need for such double protection.[6] Therefore, any relationship between indicators of "gender equality" or "women's gendered position" and condom use is likely to be masked unless the analysis adjusts for the effect modification of modern contraceptive use. In the analyses that follow, we stratify by modern contraceptive method use wherever possible. The analysis was performed separately for the individuals/couples in each group. However, this was not possible for Ugandan married men, for whom current contraceptive use was not collected.[7] The couple data are based on a subsample of married people and it was not possible to stratify the Zimbabwean married couples by contraceptive use (there were no significant predictors of condom use once stratified). A model could not be fitted for Ugandan couples in which the woman reported using a modern method of contraception because only one of the couples reported condom use at most recent sex.

4 FINDINGS

4.1 Levels and Differentials in Indicators of Gendered Access to Resources

Table 1 shows the distribution of measures of access to resources and couple dynamics among currently married/cohabiting women and men in Zimbabwe and Uganda, respectively. Fifty-eight percent of women and 71 percent of men in Zimbabwe report being employed, compared with 84 percent of women and 98 percent of men in Uganda. Despite high labor force participation rates, women are less likely to work in professional or skilled/clerical occupations than men in both countries. The largest proportions of women in both countries work in agricultural or unskilled occupations. Controlled for potential confounders, work in the agricultural industry is significantly associated with lower odds of cash remuneration, compared with work in the professions in both countries (results not shown).

[6] In Uganda, less than 2 percent of women who were using a modern method of contraception reported condom use at last marital sex, and in Zimbabwe the figure was less than 3 percent.

[7] Ugandan men were asked what method of contraception they used the last time they had sex with their different partners; however, it was thought that this variable would not be comparable with the answers to the question about current use that was used for Ugandan women and Zimbabweans in this analysis.

Table 1 Distribution of the measures of gendered access to resources and couple dynamics among currently married (cohabiting) women and men, DHS surveys in Zimbabwe (1999) and Uganda (2001)

Measures	Zimbabwe		Uganda	
	Women	Men	Women	Men
ACCESS TO RESOURCES				
Education (%)				
Any education	91	96	74	92
Primary	46	37	61	66
Secondary	42	50	11	19
Higher	3	9	3	7
Employment (%)				
Not working	42	29	16	2
Working	58	71	84	98
Professional/technical	5	10	2	5
Skilled/clerical	9	19	2	6
Sales and services	17	20	7	13
Agricultural	26	14	68	65
Unskilled manual	1	8	5	9
Missing cases	-	(1)	(6)	(1)
Exposure to sources of information score (mean, range 0-6)	2.1	3.1	1.2	1.9
HIV-related knowledge score (mean, range 0-9)	6.1	6.5	6.7	7.0
COUPLE DYNAMICS				
Type of sexual union (%)				
Living together	7.9	2.3	3.3	8.0
Decisionmaking - woman's health (%)				
Woman alone makes final decision	50	-	44	-
Husband/woman make decision jointly	13	-	18	-
Husband alone makes final decision	32	-	38	-
Some one else makes the final decision	6	-	1	-
Resource control - woman's income (%)				
Woman alone makes the final decision	49	-	54	-
Husband/woman make decision jointly	38	-	30	-
Husband alone makes final decision	12	-	15	-
Decisionmaking score (mean, range 0-4)	2.6	-	2.7	2.0
Communication score (mean, range 0-4)	3.3	3.0	2.3	2.1
Missing cases	-	-	-	(5)
Number	3,553	1,203	4,675	1,167

The survey data suggest that Zimbabwe is characterized by near-universal schooling, with 96 percent of men and 91 percent of women having attended school. In contrast, educational opportunities in Uganda are gendered, with 78 percent of women compared to 94 percent of men report having attended school. Both women and men in Zimbabwe have greater exposure to sources of information compared to their counterparts in Uganda. However, Ugandans have higher HIV-related knowledge scores. Within each country, women have lower exposure to sources of information and lower HIV-related knowledge compared with men. Considering that the primary focus of HIV-related health education messages has been on condom use, it is perhaps surprising that nearly 27 percent of women and 20 percent of men in Zimbabwe did not identify condom use as a protective measure. This aspect of knowledge was more gendered in Uganda, with 37 percent of women compared with 23 percent of men failing to identify condom use as a protective behavior.

In both countries, education and socioeconomic status are positively associated with exposure to sources of information and HIV-related knowledge in both women and men. Only

women's employment is positively associated with these two measures. Exposure to sources of information is itself an independent predictor of HIV-related knowledge in both countries. This suggests that, independent of education, health education messages via the radio, TV, and newspapers are an important source of HIV knowledge (results not shown). HIV knowledge was higher among married men and women in Uganda, despite the lower scores for media exposure.

Turning to couple dynamics, living together, versus being formally married, was more commonly reported by women in Zimbabwe and by men in Uganda. In Uganda, 30 percent of the couples in the subsample disagreed about this, compared with only 9 percent of the Zimbabwean couples. Couple communication around family planning issues appears to be common in both countries, though more so in Zimbabwe, and is positively associated with education, number of living children, and a desire for limiting child-bearing, in both countries. There were significant differences in the levels of communication and decisionmaking process reported by men and women in both countries. The sociolegal status of the union emerged as an important predictor of couple communication. Women in polygamous unions (marital or partnered) had lower communication scores compared with women in monogamous unions in both Zimbabwe and Uganda.

In both countries, most women working for a wage had full or partial control over the use of the income. Nearly 50 percent of women in Zimbabwe and Uganda who work and are paid in cash reported that they alone decide how their wages will be spent. Another 38 percent in Zimbabwe and 30 percent in Uganda decide jointly with their husbands/partners. However, formal marriage and coresidence are negatively associated with women making the final decision (in both countries).

Fifty percent of women in Zimbabwe and 44 percent in Uganda report that they alone make the final decision regarding their health. Neither education, nor occupation emerged as important predictors of women's final decisionmaking authority regarding their own health in both countries. Only a small proportion of women with a higher education (3 percent in both countries) have significantly higher odds of making the final decision regarding their own health. In Zimbabwe, coresidence is negatively associated with women's final decisionmaking authority, while in Uganda, marriage and coresidence are negatively associated with final decisionmaking authority. In Uganda, men's normative role in final decisionmaking is brought out by the fact that only three variables, type of sexual union (formal marriage versus consensual unions), polygynous union, and socioeconomic status were significant. Marriage is positively, while polygynous union is negatively, associated with men's final decisionmaking in the two domains examined (purchase of large household items and visit to friends and family) (data not shown).

4.2 Sexual Activity and Predictors of Condom Use Among all Married Men and Women

4.2.1 Zimbabwe

Table 2 shows the distribution of condom use at last sexual intercourse by type of sexual partner. More sexually active women (87 percent) than men (67 percent) reported a spouse/partner as their last sexual partner. Conversely, more men than women reported sexual intercourse with boyfriend/girlfriend/fiancé, casual acquaintances, relatives, or commercial sex workers (CSW). Heterosexual, extra-marital/partner sexual activity is also more commonly reported by men than women. In Zimbabwe, 30 percent of married/partnered men compared with 10 percent of married/partnered women reported extra-marital sexual partners in the 12 months preceding the survey.

Table 2 Sexual activity and condom use, DHS surveys in Zimbabwe (1999) and Uganda (2001)

	Zimbabwe		Uganda	
Sexual activity and condom use	Women	Men	Women	Men
Percentage who used a condom at most recent sex with an extra-marital partner (N)				
Boyfriend/girlfriend	41 (22)	73 (69)	23 (87)	53 (51)
Friend	50 (10)	59 (75)	44 (25)	76 (71)
Casual acquaintance	67 (9)	0 (3)	25 (12)	61 (23)
Other	0 (1)	-	0 (1)	38 (8)
Commercial sex worker	-	83 (23)	-	100 (4)
Percentage who used a condom at most recent sex with spouse (N)	4.0 (3,547)	6.1 (1,184)	2.2 (4,709)	3.8 (1,154)

Reported rates of condom use vary by type of relationship with the partner. Nine percent of sexually active women compared with 27 percent of sexually active men reported condom use at last sexual intercourse. Condom use with a spouse/partner is a rare event, with only 6 percent of men and 4 percent of women reporting such behavior. Use rates increase with boy/girlfriend or fiancée, but are still characterized by gender differences. More men than women report condom use with nonregular partners (Table 2).

Reasons for using condoms differ by type of sexual partner. Among married condom users, 54 percent of women and 73 percent of men reported that they initiated or insisted on use to protect themselves against pregnancy. Only 15 percent of women and 9 percent of men reported use to prevent STIs, and 9 percent of women and 4 percent of men reported that use within marriage was to prevent both STIs and pregnancy. No men and only 2 percent of women said they insisted upon condom use because they did not trust their partner. No men and 5 percent of women said a condom was used at last marital sexual intercourse because of their partner's insistence/request. In contrast, condom use at last extra-marital sex was primarily explained in terms of STI prevention. Sixty percent of men and 51 percent of women cited STI protection as the reason for use, and 30 percent of men and 6 percent of women gave both STI and pregnancy prevention as their reason. Eleven percent of women and 2 percent of men said that they mistrusted their partner.

Condom Use with Marital (or Regular) Partner

As noted above, condom use within marriage is uncommon, reported by only 4 percent of women and 6 percent of men in Zimbabwe. Table 3 presents the final models for the predictors of condom use at last marital sex for married (cohabiting) Zimbabwean men and women stratified by whether use of a modern method of contraception was reported. The predictors are largely inconsistent across the four models—there are differences both between men and women and between the modern method users and those not using modern methods of contraception. The women's models reveal more significant associations, possibly because the sample sizes were larger, affording greater power to detect relationships. Among the men who reported use of modern contraception, only sociolegal status of the union emerged as a significant predictor of condom use at last marital sex. Those who reported living together had odds of condom use 8.5 times higher than those who reported formal marriage. There was some evidence that those in marriages of shorter duration were less likely to use condoms than those who had been married/partnered for 10 years or more, but the effect was of questionable significance. Among the men who did not report modern contraceptive use, the most important predictor of condom use at last marital sex was socioeconomic status group, with the odds of use rising steeply with higher socioeconomic group. In

addition, the man's HIV knowledge score, modeled linearly, was found to be positively associated with condom use. Among Zimbabwean women who reported using a modern method of contraception, age was negatively associated with condom use at last marital sex, while having a professional or unskilled manual occupation carried odds of use significantly higher than those of nonworkers. Counterintuitively, there was evidence that among this group, women who had more lenient attitudes towards wifebeating were more likely to have used a condom at last marital sex. Among the non users of modern contraception, the wife-beating score showed the expected negative association with condom use. Furthermore, greater communication with one's partner and having discussed HIV with one's partner were both positively associated with condom use at last marital sex, though the effects were not large. Having been married less than 10 years also increased the odds of use when compared with those who had been married (partnered) for longer.

Table 3 Predictors of condom use at last marital sex among currently married (cohabiting) Zimbabwean men and women, stratified by current use of modern contraceptive methods, DHS survey in Zimbabwe (1999)

Predictors of condom use	Adjusted odds ratio	P-value	95% CI
MEN			
Users of modern contraceptive methods (N=613)			
Married 10+ years	1.00	-	-
Married less than 10 years	0.35	0.051	(0.12-1)
Formally married	1.00		
Living together	8.53	0.076	(0.8-91.41)
Nonusers of modern contraceptive methods (N=560)			
SES group 1	1.00		
SES group 2	2.92	0.039	(1.06-8.04)
SES group 3	4.23	0.007	(1.49-12.04)
SES group 4	8.98	0.055	(0.95-84.59)
HIV knowledge score	1.36	0.004	(1.11-1.67)
WOMEN			
Users of modern contraceptive methods (N=1,629)			
Age (linear term)	0.93	0.002	(0.89-0.97)
Not working	1.00	-	-
Professional occupation	4.71	0.018	(1.31-17.02)
Clerical/skilled manual occupation	0.32	0.134	(0.07-1.42)
Sales/service occupation	1.12	0.785	(0.48-2.61)
Agricultural occupation	1.04	0.913	(0.49-2.23)
Unskilled manual occupation	4.09	0.045	(1.04-16.16)
Acceptability of wife beating score	1.24	0.027	(1.02-1.49)
Nonusers of modern contraceptive methods (N=1,771)			
Acceptability of wife beating score	0.83	0.026	(0.71-0.98)
Married 10+ years	1.00	-	-
Married less than 10 years	1.78	0.010	(1.15-2.75)
Woman's couple-communication score	1.24	0.024	(1.03-1.49)
Did not discuss HIV with partner	1.00	-	-
Discussed HIV with partner	1.35	0.008	(1.08-1.69)

Note: Logistic regression odds ratios. Outcome data were missing for 13 cases, 27 cases, 26 cases, and 81 cases in models 1 to 4, respectively.

Condom Use with Nonregular Partners

There were insufficient numbers of married Zimbabwean women who reported extra-marital sex (N=42) to allow us to explore the predictors of condom use. However, the final model for the predictors for Zimbabwean men are shown in Table 4. The most important predictors are socioeconomic status group and sexual partner being a commercial sex worker. Odds of condom use were more than 5 times higher among men who reported that their last extra-marital partner was a commercial sex worker, compared with those who reported a partner who was not a commercial sex worker. Compared with the lowest socioeconomic category, those in the highest socioeconomic group had odds of condom use almost 18 times higher. Although these two associations suggest that knowledge and recognition of HIV risk may influence men's behavior, there was no association between the score on HIV-related knowledge or exposure to sources of information and condom use at last extra-marital sex.

Table 4 Predictors of condom use at last extra-marital sex among currently married (cohabiting) Zimbabwean men, DHS survey in Zimbabwe (1999)

Predictor of condom use at last extra-marital sex	Adjusted odds ratio	P-value	95% CI
Last extra-marital partner not a CSW	1.00	-	-
Last extra-marital partner was a CSW	5.13	0.029	(1.19-22.24)
Married 10+ years	1.00		-
Married less than 10 years	3.23	0.017	(1.24-8.41)
Man's couple communication score	1.81	0.003	(1.24-2.66)
Lowest SES category	1.00	-	-
Second SES category	4.44	0.009	(1.45-13.53)
Third SES category	6.92	0.002	(2.09-22.86)
Highest SES category	17.58	0.004	(2.53-121.88)
Not able to get a condom or doesn't know	1.00	-	-
Able to get a condom	3.94	0.025	(1.19-13.05)

Note: N=170
CSW = Commercial sex worker
SES = Socioeconomic status

There is evidence to suggest that the nature of a man's relationship with his regular partner may influence his behavior in his nonregular sexual encounters. Men who have been married less than 10 years have odds of condom use significantly higher than those who have been married 10 years or longer, and a higher couple communication score predicts condom use at last extra-marital sex. Reporting an ability to access condoms is also associated with higher odds of use.

4.2.2 Uganda

Eighty-seven percent of women and 80 percent of men in Uganda reported a spouse as their last sexual partner. As in Zimbabwe, sex with boyfriend/girlfriend/fiancée, other friends, or casual acquaintances was uncommon, but relatively more common in men than women (Table 2). More married/partnered men than women (21 percent and 11 percent, respectively) reported extra-marital sexual partners in the 12 months preceding the survey.

Again, as in Zimbabwe, there are large sex differences in reported rates of condom use. Seven percent of women and 15 percent of men reported condom use at last sexual intercourse. Even more so than in Zimbabwe, marital condom use was a rare event with only 2 percent of women and 4

percent men reporting such use. The condom use rate is higher with nonregular partners with 23 percent of women and 53 percent of men reporting use with a boy/girlfriend or fiancée.

As in Zimbabwe, the majority of marital condom users gave pregnancy prevention as their main reason for use: 93 percent of men and 69 percent of women, compared with just 5 percent of men and 14 percent of women who cited STI prevention as their reason. Among the extra-marital condom-users, 62 percent of men and 53 percent of women reported they initiated or insisted upon use to protect themselves against STIs, compared with just 15 percent of women and 6 percent of men who report use for pregnancy prevention purposes. In extra-marital sexual encounters, 27 percent of women and 28 percent of men cited both pregnancy and STI prevention as their reasons for condom use.

Condom Use with Marital (or Regular) Partner

Unlike the diverse results for Zimbabwe, the Ugandan models of condom use at last marital sex showed some common predictors. Among women, whether users of modern contraception or not, education emerged as an important predictor of condom use (Table 5). In both models, women with higher-level education had odds of condom use significantly greater than those with no or only primary schooling. Among women who were not users of modern contraception, their HIV knowledge score and media exposure score were also positively associated with condom use. Clearly,

Table 5 Predictors of condom use at last marital sex among currently married (cohabiting) Ugandan men and women, stratified by current use of modern contraceptive methods, DHS survey in Uganda (2001)

Predictors of condom use	Adjusted odds ratio	P-value	95% CI
MEN			
All married men (N=1,135)			
Media exposure score	1.38	0.003	(1.11-1.7)
Married 10+ years	1.00	-	-
Married less than 10 years	1.90	0.041	(1.03-3.52)
Man's couple communication score	2.23	0.000	(1.49-3.33)
WOMEN			
Users of modern contraceptive methods (N=688)			
No education/Primary education	1.00	-	-
Secondary education	1.59	0.527	(0.37-6.79)
Higher education	6.63	0.012	(1.52-28.82)
Formally married	1.00	-	-
Living together	6.11	0.013	(1.48-25.28)
Nonusers of modern contraceptive methods (N=3,779)			
No education/Primary education	1.00	-	-
Secondary education	2.11	0.008	(1.22-3.66)
Higher education	2.59	0.032	(1.09-6.2)
Media exposure score	1.55	0.000	(1.34-1.79)
HIV knowledge score	1.29	0.000	(1.14-1.46)
Woman's couple communication score	1.57	0.000	(1.29-1.9)

Note: Logistic regression odds ratios. Outcome data were missing for 28 cases, 22 cases, and 171 cases in models 1 to 3, respectively.

women's access to information appears to facilitate use of condoms within marriage. There is also evidence that the nature of couple dynamics influences use of condoms within marriage. Among both women who were nonusers of modern contraception and the all male sample, a positive association was found between the communication score and condom use. Among the men, the odds of using a condom doubled for each one point increase on the communication score. In addition, among women who were using a modern method of contraception, those who reported living together, rather than being formally married, were far more likely to have used a condom at last sex, and among the men, those married for less than 10 years were more likely to report condom use than those married 10 years or longer.

Condom Use with Nonregular Partners

For the predictors of condom use with nonregular partners, Table 6 shows the final models for married men and married women separately. Among men, the media exposure score was positively associated with condom use in extra-marital sex, as was the case for marital sex (Table 5). Being able to access a condom and working in a sales/service occupation were also associated with condom use. Among women, those who reported reading a newspaper every day had odds of condom use almost nine times higher than those who did not read a newspaper on a daily basis. The woman's score on "acceptability of female refusal to have sex" also showed a significant, positive association with condom use at last extra-marital sex. Although the numbers would not support a stratified analysis, current use of contraception was found to be a significant independent predictor of condom use at last extra-marital sex. Women who reported that they were using condoms as their method of contraception were far more likely than those not using a method to have used a condom at last extra-marital sex. However, those women who reported using a modern method of contraception were also more likely than nonusers to have used a condom at last extra-marital sex. A counterintuitive finding was that women with higher household decisionmaking scores, that is those who reported more involvement in household decisions, were less likely to have used a condom at last extra-marital sex.

Table 6 Predictors of condom use at last extra-marital sex among currently married (cohabiting) Ugandan men and women, DHS survey in Uganda (2001)

Predictors of condom use	Odds ratio	P-value	95% CI
Men (N=160)			
Media exposure score	1.47	0.045	(1.01-2.15)
Not able to get a condom or doesn't know	1.00	-	-
Able to get a condom	12.87	0.000	(4.15-39.95)
Agricultural occupation	1.00	-	-
Not working	0.17	0.141	(0.02-1.83)
Professional occupation	9.67	0.069	(0.83-112.27)
Clerical/skilled manual occupation	0.56	0.435	(0.13-2.42)
Sales/Service occupation	4.44	0.036	(1.1-17.82)
Unskilled manual occupation	1.12	0.853	(0.33-3.85)
Women (N=125)			
Not using any contraception	1.00	-	-
Using a modern method of contraception	5.04	0.038	(1.09-23.25)
Using condoms for contraception	167.68	0.000	(11.9-2360.4)
Using a traditional method of contraception	2.20	0.400	(0.34-14.01)
Household decisionmaking score	0.43	0.008	(0.24-0.8)
Doesn't read a newspaper daily	1.00	-	-
Reads a newspaper approximately every day	8.94	0.016	(1.52-52.37)
Ability to refuse sex score	2.04	0.004	(1.26-3.3)

4.2.3 Predictors of Condom Use Among Matched Couples: Further Exploration of Couple Dynamics

The final stage of our analysis involved fitting models for condom use at last marital sex among monogamous matched couples to examine whether there was any evidence that the combined characteristics of the two partners influences condom use. As mentioned above, the outcome measure used in this phase was the male partner's report of condom use at last marital sex.

In Uganda, the matched-couple analysis was restricted to those not using a modern method of contraception, since there were insufficient reports of condom use at last sex among the modern method users to support an analysis. The results tended to support the findings of the other models of marital condom use, namely that communication between partners and access to information are important predictors of use. The model-building process showed that when entered into the models alone, both the men's and the women's individual reports of media exposure, HIV knowledge, and couple communication were significant predictors of condom use. However, when both the men's and the women's scores were entered into models together, the variables tended to lose significance, reflecting the fact that they were multicollinear. The data do not show whether the men's or the women's access to information is more important, and we opted to include combined scores in the final model (Table 7). However, the two other variables suggest that couple dynamics are important in determining marital condom use. These include a greater age difference between partners being associated with lower odds of using a condom, and condom use being significantly more likely among couples who agreed on future fertility preferences compared with those who did not agree.

The matched couple data were modeled as one group for Zimbabwe because stratification by modern method of contraception resulted in the loss of all significant associations. The model for Zimbabwe is somewhat more difficult to interpret than the Ugandan model. However, certain patterns common to the earlier results do emerge, such as the importance of the sociolegal status of the union. Where the woman in the couple reports that the union is a cohabitation rather than a formal marriage, condom use at last sex is more common. There is also evidence that couple communication and, specifically, discussion of HIV are related to the use of condoms within marriage. In couples where the man reports that he has discussed HIV with his wife, the odds of using a condom at last marital sex are more than three times higher than in couples where the man reports no such discussion. However, once the man's report of discussion of HIV is controlled for, whether or not the woman also reports HIV discussion is not related to the odds of using a condom. The couple communication score behaved slightly differently, with the woman's score showing a significant positive association with condom use. The other variables that show significant associations with condom use at last marital sex relate to fertility behavior. Compared with couples where the woman wants another child soon, those who want to delay or stop childbearing were more likely to report condom use at last sex. However, having controlled for fertility desires, couples who are currently using a modern method of contraception are less likely to have used a condom at last sex than those who are not using a modern method.

Table 7 Predictors of condom use at last marital sex among monogamous matched couples, DHS surveys in Uganda (2001) and Zimbabwe (1999)

Predictors of condom use	Adjusted odds ratio	P-value	95% CI
Uganda: nonusers of modern contraceptive methods (N=670)			
Difference between man's and woman's ages	0.91	0.025	(0.83-0.99)
Combined score on media exposure	1.22	0.007	(1.06-1.4)
Combined score on HIV knowledge	1.22	0.047	(1-1.5)
Combined score on couple communication	1.47	0.001	(1.18-1.83)
Couple do not agree on fertility preference	1.00	-	-
Couple agree on fertility preference	3.84	0.018	(1.27-11.65)
Zimbabwe: all monogamous couples (N=758)			
Woman reports 'formally married'	1.00	-	-
Woman reports 'living together'	12.42	0.005	(2.19-70.46)
Man and woman disagree about marital status	1.00	-	-
Man and woman agree about marital status	19.07	0.004	(2.61-139.32)
Woman wants more children soon	1.00	-	-
Woman undecided/wants later	3.79	0.017	(1.27-11.25)
Woman wants no more children	3.52	0.020	(1.22-10.19)
Couple do not give same fertility preference	1.00	-	-
Couple give same fertility preference	0.78	0.482	(0.39-1.57)
Not using a modern method of contraception	1.00	-	-
Currently using a modern method of contraception	0.27	0.000	(0.14-0.53)
Woman's score on couple's communication	2.72	0.044	(1.03-7.23)
Man's score on couple's communication	0.36	0.058	(0.13-1.04)
Difference in scores of couple's communication	3.33	0.052	(0.99-11.22)
Man says couple have not discussed HIV	1.00	-	-
Man says couple have discussed HIV	3.18	0.039	(1.06-9.55)
Woman says couple have not discussed HIV	1.00	-	-
Woman says couple have discussed HIV	1.32	0.432	(0.66-2.62)

5 CONCLUSIONS AND DISCUSSION

5.1 Male versus Female Patterns

The objective of this investigation was to examine empirically the ways in which gendered differences between female and male access to household resources and to resources in the wider society influence couple dynamics and the adoption of condom use as an HIV protective behavior. Our results confirm the well-documented differentials in access to resources between women and men. While women are as likely to be employed as men, their distribution by occupation and type of remuneration shows that women are more likely to work in informal, unskilled, poorly paid, or non-paying occupations than men.

Notwithstanding high levels of labor force participation, there is no association between women's employment and control over personal income, decisionmaking authority (even regarding their own health), or condom use in either Zimbabwe or Uganda. This finding raises the question of whether women's employment has the potential to transform their gendered positions and enable them to challenge the entrenched gender norms of male dominance and female passivity in sexual matters. Clearly, the type of occupation and the context in which it is carried out are more important than employment per se. For example, women's work in the professions is positively

associated with exposure to sources of information, the HIV-related knowledge index, and condom use, while work in agriculture is not. Overall, where the large majority of women work in informal, irregular, low paying, and unskilled occupations, employment does not appear to be particularly transformative of gender relations nor does it appear to enable women to insist on use of condoms by men.

Education is the other important resource to which women have limited access compared with men. Although primary education is nearly universal in Zimbabwe, there are large gender differentials at the post-primary level. In Uganda, the gendered differentials are large even at the primary level. Men also have greater exposure to sources of information, itself an independent predictor of HIV-related knowledge, compared with women. Education emerged in Uganda as an important predictor of women's reported condom use within marriage, and among nonusers of modern contraception, media exposure and HIV-specific knowledge were additional important, independent predictors. In the model of condom use at last extra-marital sex, newspaper reading emerged as an important predictor for Ugandan women, again suggesting that education/literacy and access to information do facilitate condom use. In Uganda, our findings suggest that heightened access to information among women is associated with HIV-protective behavior. In contrast, among Zimbabwean women, we found no evidence of significant differentials in condom use within or outside of marriage by level of education or access to information. This may reflect the fact that educational levels are higher generally among Zimbabwean women or that other factors, particularly those related to couple dynamics, act to dilute the impact of women's education or knowledge.

Comparing the predictors of condom use among men and women in each country, we find some similarities and some contrasts. In Zimbabwe, there is evidence that socioeconomic status differentials in condom use are important for both men and women. Whereas the measure of socioeconomic status emerged as a predictor in two of the three male models, it was occupation that retained significance in the model of condom use within marriage for women. Nevertheless, both these variables reflect socioeconomic status and it is important to recognize that in addition to gendered influences, there may be other factors that cut across gender to create barriers to condom use for both poor men and poor women. Duration of marriage emerged as another factor common to male and female models in Zimbabwe, suggesting the importance of couple dynamics. In terms of contrasts between men and women, HIV knowledge emerged as an important predictor of condom use within marriage in one of the models for Zimbabwean men, but not for women, perhaps suggesting that men can put their knowledge into practice more easily than women. In addition, reported access to condoms was significantly related to condom use at last extra-marital sex for both Zimbabwean and Ugandan men, but did not emerge as an important variable in any of the women's models, a finding consistent with the body of anthropological research that identifies men as being more powerful and proactive than women in sexual relationships (Connel, 1985; Schoepf, 1998).

5.2 Importance of Couple Characteristics

The results presented above confirm that a conceptual model that focuses on the sexual dyad rather than the characteristics of individuals alone better reflects reality. We find evidence of differential patterns of condom use within marital and extra-marital sexual encounters, as well as differential use between couples who report formal marriage rather than cohabitation. Duration of marriage and indicators of couple dynamics also emerge in several of our models as significant, independent predictors of condom use.

Our analyses show that condom use is more common with nonregular partners than with spouses/regular partners. This finding agrees with previous research from the same region (Blanc and Wolff, 2001; Gregson, 1998) and suggests differences in perception of risk of HIV infection between a spouse and nonregular partner. The models of condom use at last extra-marital sex for men also suggest that risk perception plays a role in determining use. Zimbabwean men were far more likely to use a condom with a commercial sex worker than another type of extra-marital partner (Table 4), and among Ugandan men a higher media exposure score was associated with condom use (Table 6). However, as the literatures suggests, risk perceptions may not always be accurate. Multiple extra-marital sexual partners are common, particularly among men, and couples rarely share information regarding their HIV-positive status with their spouse (Meursing and Sibinde, 1995). We can only postulate the reasons for low marital condom rates. Men may consider their wives or regular partners as "clean women" (Schoepf, 1998); they may feel safer experiencing sexual satisfaction, that centers around penetration, with their wives (Ssali et al., 1992; de Bruyn, 1992). The literature also suggest that it may be incorrect to assume that women want their husband/partner to use condoms, but are prevented from doing so. Many women are ambivalent about condom use in marriage and believe condomless sex is a sign of trust, honesty, and commitment in a marriage. Insisting upon condom use would amount to an admission to themselves of a partner's potential unfaithfulness, thus reducing self-esteem (Varga, 1997; Meursing and Sibinde, 1995). The most likely barrier to condom use within a regular union, however, is desire for children.

Type of sexual union also emerges as an important factor in condom use. Although formal marriage is the norm, cohabiting relationships were reported by a significant minority of respondents. Though reported marital status is ambiguous and disagreement between partners was common, this variable emerged as a significant predictor of condom use in several of the models. A cohabiting relationship was associated with higher odds of condom use at last marital sex than a formal marriage in some of the models for both countries. This relationship may be explained in part by fertility desires and contraceptive choices. That is, cohabiting couples may be at the start of their childbearing years and be reluctant to use other modern methods that could be perceived as possibly compromising later fertility. This may also explain why condom use is higher among those married for less than 10 years than among those married for longer in several of the models. However, it seems likely that at least part of the association may reflect the nature of the couple's dynamics. Certainly, even among Ugandan women who are modern method users, odds of condom use at last marital sex are more than six times higher among cohabiting women than formally married women (Table 5). This suggests that cohabiting women may have more options than those who are formally married.

Our results provide evidence that couple dynamics, and communication between partners in particular, play a part in determining use of condoms. In Zimbabwe, among women who were not currently using a modern method of contraception, condom use was more common at last marital sex among women who had discussed HIV with their partner, those with a higher couple communication score and those with a lower acceptability of wife-beating score. Among Zimbabwean men, those with a higher couple communication score (relating to their regular partner) were more likely to report condom use at last extra-marital sex, suggesting that more open, egalitarian marital relationships may even imply safer sexual practices beyond marriage. The matched couples analysis for Zimbabwe (Table 7) also suggests that couple dynamics are important determinants of condom use, because both the communication score and discussion of HIV were associated with higher odds of use. In Uganda, the communication score was significantly associated

with condom use at last marital sex among both men and those women who were non-users of modern contraception. The matched couple analysis also confirmed the importance of couple communication. As well as the significance of the direct couple communication score, a larger age difference between partners was associated with lower odds of use, perhaps reflecting a lower level of discussion. It was also interesting to find that among Ugandan women, condom use at last extra-marital sex was more likely among those women who reported a greater ability to refuse sex, suggesting that greater power in sexual relations may translate into HIV-protective behavior.

5.3 Zimbabwe versus Uganda

Levels of reported condom use were higher among the Zimbabwean married men and women in both marital and extra-marital sex than their Ugandan counterparts. However, in our search for predictors of condom use, models for Zimbabwe were more erratic and more difficult to fit than those for Uganda. Despite these complexities, we have identified a number of factors that appear to show some consistency across the two countries, notably couple communication and discussion. However, the two countries differ in some respects. There is evidence that media exposure is a determinant of reported condom use among both men and women in Uganda; no such pattern was apparent for Zimbabwe. Despite higher average scores for media exposure in Zimbabwe, HIV-related knowledge scores were lower on average than among their Ugandan counterparts. This suggests that the use of the mass media as a vehicle for HIV awareness education has been more successful in Uganda and that individuals in Uganda are better able to act on information acquired than those in Zimbabwe. Nevertheless, levels of condom use remain low, particularly in regular sexual unions.

5.4 Measuring Gendered Influences on Condom Use

This analysis has shown that gendered inequalities in access to resources and couple dynamics influence the use of condoms among couples in Zimbabwe and Uganda. However, considering the central role that is frequently given to power differentials between men and women in explaining the HIV epidemic, we might have expected to see larger and more consistent effects. Odds ratios relating to socioeconomic variables and the status of the union are far bigger than any of those related to measures of gendered couple dynamics, and many of the variables explored showed no relationship with condom use at all (e.g., decisionmaking, control of women's income). A number of methodological issues may account for these results. The measures of couple dynamics available relate to the regular partnership and are therefore of questionable relevance to understanding nonregular encounters where the balance of power between the actors may be very different. Many of the indicators are standard measures that have been included in surveys in varied cultural settings around the world. While the desirability of international comparisons is recognized, it is doubtful that these measures have a consistent meaning across contexts. Kabeer (1999) provides a useful discussion of the importance of meaning in the selection of indicators of empowerment, and highlights the fact that a measure may be indicative of a transformation in gender relations in one setting while not in another. The extent to which individual-level cross-sectional analyses can illuminate gendered constraints on HIV protective behaviors is limited. Such analyses may provide clues as to the types of women (and sets of individual circumstances) who are managing to exercise relatively greater control over their sexual behavior and thereby suggest pressure points or way in which change might be brought about for other women. However, because such analyses involve looking for differentials between women who are operating within the same gender system, their potential for increasing our understanding of the gendered ways of being and doing which constrain the possibility of women protecting themselves against HIV is limited. Finally, condom use cannot

be considered as reflective of greater female power or a more egalitarian relationship between partners. In many cases, condom use is related to the unilateral exercise of power by the male partner. The conflation of condom use for contraceptive purposes with condom use as an HIV-protective behavior complicates our search for predictors of use. Taken together, these methodological complexities suggest the need for more careful development of indicators of couple dynamics and empowerment of women and the integration of qualitative and quantitative approaches if we are to better understand the form and scale of gendered constraints to HIV-protective behaviors.

REFERENCES

Acharya, M. and L. Bennett. 1982. *Women and the subsistence sector: Economic participation and household decisionmaking in Nepal.* World Bank Staff Working Paper 526. Washington, D.C.: World Bank.

Akwara, P., N. Madise, and A. Hinde. 2003. Perception of risk of HIV/AIDS and sexual behaviour in Kenya. *Journal of Biosocial Science* 35: 385-441.

Allen, S., et al. 1991. Human immunodeficiency virus infection in urban Rwanda. Demographic and behavioral correlates in a representative sample of child-bearing women. *Journal of the American Medical Association* 266: 1657-1663.

Anderson, S.R., J.W. Bainbridge, A. Shah, G. El-Jasser, H.D.D. Brook, and M. Kapila. 1990. AIDS education in rural Uganda—a way forward. *International Journal of STDs and AIDS* 1: 335-339.

Annandale, E. and J. Clark. 1996. What is gender? Feminist theory and the sociology of human reproduction. *Sociology of Health and Illness* 18(1): 17- 44.

Becker, G. 1981. *A treatise on the family*. Cambridge, Massachusetts: Harvard University Press.

Berkley, S.F., W.R. Widy, and S.I. Okware. 1989. Risk factors associated with HIV infection in Uganda. *Journal of Infectious Diseases* 160: 22-30.

Blanc, A. and B. Wolff. 2001. Gender and decisionmaking over condom use in two districts in Uganda. *African Journal of Reproductive Health* 5(3): 15-28.

Brahmbhatt, H., D. Bishai, F. Wabwire-Mangen, G. Kigozi, M. Wawer, and R. Gray. 2002. Polygyny, maternal HIV status and child survival: Rakai, Uganda. *Social Science and Medicine* 55: 585-592.

Bryceson, D.F. (Ed.) 1995. *Women wielding the hoe: Lessons from rural Africa for feminist theory and development practice*. Oxford: Berg Publishers.

Caldwell, J.C., I.O. Orubuloye, and P. Caldwell. 1999. Obstacles to behavioral change to lessen the risk of HIV infection in the African AIDS epidemic: Nigerian research. *Health Transition Review* 9: 113-124.

Celentano, D.D., M.S. Linet, and W.F. Stewart. 1990. Gender differences in the experience of headache. *Social Science and Medicine* 30: 1289-1295.

Cohen, B. and J. Trussell. 1996. *Preventing and mitigating AIDS in sub-Saharan Africa: Research and data priorities for the social and behavioral sciences*. Washington D.C.: National Academy Press.

Collins, J. and B. Rau. 2000. United Nations Research Institute for Social Development (UNRISD) Programme on social policy and development. Paper Number 4. Washington, D.C.: UNRISD and UNAIDS.

Connel, R.W. 1985. Theorizing gender. *Sociology* 19(2): 260-272.

Correa, S. and R. Reichmann. 1994. *Population and reproductive rights: Feminist perspectives from the South.* London: Zed Books.

Dallabetta, G.A., P.G. Miotti, and J.D. Chiphangwi. 1993. High socioeconomic status is a risk factor for human immunodeficiency virus Type 1 infection, but not for sexually transmitted diseases in women in Malawi: Implications for HIV-1 control. *Journal of Infectious Diseases* 167: 36-42.

de Bruyn, M. 1992. Women and AIDS in developing countries. *Social Science and Medicine* 34(3): 249-262.

Di Stefano, C. 1990. Dilemmas of difference: Feminism, modernity and postmodernism. In L. Nicholson (Ed.) *Feminism and postmodernism.* New York: Routledge.

Di Stefano, C. and J. Lorber. 1998. Paradoxes of gender [review]. *Summer* 23 (4): 1068-1072.

Dixon-Mueller, R. 1993. The sexuality connection in reproductive health. *Studies in Family Planning* 24(5): 269-82.

Forster, S.J. and K.E. Furley. 1989. 1988 Public awareness survey on AIDS in Uganda. *AIDS* 3: 147-154.

Fylkesnes, K., et al. 1997. The HIV epidemic in Zambia: Socio-demographic prevalence patterns and indications of trends among childbearing women. *AIDS* 11: 339-345.

Goetz, A. M. and R. Sen Gupta. 1996. Who takes the credit? Gender, power, and control over loan use in rural credit programs in Bangladesh. *World Development* 24(1): 45-63.

Greenhalgh, S. 1995. Anthropology theorizes reproduction: Integrating practice, political economic and feminist perspectives. In S. Greenhalgh (Ed.) *Situating fertility.* Cambridge: Cambridge University Press.

Greenhalgh, S. 1991. *Women in the informal enterprise: Empowering or exploitation?* Working Paper No. 33. New York: Population Council Research Division.

Gregson, S., T. Zhuwau, R.Y. Anderson, and K. Chandiwana. 1998. Is there evidence for behavior change in response to AIDS in rural Zimbabwe? *Social Science and Medicine* 46(3): 321-330.

Grosskurth, H. 1995. A community trial of the impact of improved sexually transmitted disease treatment on the HIV epidemic in rural Tanzania: Baseline survey results. *AIDS* 9: 927-934.

Hargreaves, J. and J. Glynn. 2002. Educational attainment and HIV-1 infection in developing countries: A systematic review. *Tropical Medicine and International Health* 70(6): 489-498.

Hillier L., L. Harrison, and D. Warr. 1998. "When you carry condoms all the boys think you want it": Negotiating competing discourses about safe sex. *Journal of Adolescence* 21(1): 15-29.

Ingham, R. and G. van Zessen. 1997. Towards an alternative model of sexual behavior: From individual properties of interactional processes. In Van Campenhoudt, L.M. Cohen, G. Guizzardi, and D. Hausser (Eds.) *Sexual interactions and HIV risk: New conceptual perspectives in European research.* London: Taylor and Francis.

Jejeebhoy S. and Z. Sathar. 2001. Women's autonomy in India and Pakistan: The influence of religion and region. *Population and Development Review* 27(4): 687-712.

Kabeer, N. 1995. *Necessary, sufficient or irrelevant? Women, wages and intra-household power relations in urban Bangladesh*. Institute of Development Studies, Working Paper 25. Sussex, U.K.: IDS.

Kabeer, N. 1999. *The conditions and consequences of choice: Reflections on the measurement of women's empowerment.* United Nations Research Institute for Social Development Discussion Paper No. 108. Geneva: UNRISD.

Kaleeba, N., S. Ray, and B. Willmore. 1991. We miss you all: AIDS in the family. Harare, Zimbabwe: Women and AIDS Support Network.

Kilian, A.H., et al. 1999. Reductions in risk behavior provide the most consistent explanation for declining HIV-1 prevalence in Uganda. *AIDS* 13: 391-398.

Kim, N., B. Stanton, X. Li, K. Dickerson, and J. Galbraith. 1997. Effectiveness of the 40 adolescent AIDS-risk reduction interventions: A quantitative review. *Journal of Adolescent Health* 20: 204-215.

Kirunga, C.T. and J.P. Ntozi. 1997. Socioeconomic determinants of HIV serostatus: A study of Rakai District, Uganda. *Health Transition Review* 7(suppl.): 175-188.

Lorber, J. 1994. *Paradoxes of gender*. New Haven and London: Yale University Press.

Lundberg, O. 1990. *Inequality in health: On class and sex differences in illness*. Stockholm: Stockholm University, Swedish Institute for Social Research 11.

Marcus, R. 1993. *Gender and HIV/AIDS in sub-Saharan Africa: The cases of Uganda and Malawi*. Report 13. Brighton, U.K.: Bridge (development-gender) Institute of Development Studies, University of Sussex.

Masika, R. and S. Joekes. 1996. *Employment and sustainable livelihoods: A gender perspective*. Report 37. Brighton, U.K.: Institute of Development Studies, University of Sussex.

Mason, K. 1993. The impact of women's position on demographic change during the course of development. In N. Federici and K. Mason (Eds.) *Women's position and demographic change.* Oxford: Clarendon Press.

Mason, K. 1995. *Gender and demographic change: What do we know?* Liege, Belgium: International Union for the Scientific Study of Population.

Meursing, K. and F. Sibindi. 1995. Condoms, family planning and living with HIV in Zimbabwe. *Reproductive Health Matters* 5: 56-67.

Morgan, D. et al. 2001. Genital ulceration in rural Uganda: Sexual activity and the implications for HIV control. *Sexually Transmitted Diseases* 28(8): 431-436.

Nduati, R. and W. Kiai. 1997 *Communicating with adolescents about AIDS: Experience from Eastern and Southern Africa*. Ottawa, ON: International Development Research Center.

Ogden, J.A. 1996. Reproductive identity and the proper woman: The response of urban women to AIDS in Uganda. Ph.D. dissertation, University of Hull.

Okojie, C.E. 1994. Gender inequalities of health in the Third World. *Social Science and Medicine* 39(9): 1237-1247.

Quigley, M. et al. 1997. Sexual behavior patterns and other risk factors for HIV infection in rural Tanzania: A case-control study. *AIDS* 11: 237-248.

Rademakers, J., J.B. Luijks, G. Zessen, W. Zijlmans, C.J. Straver, and G. Rijt. 1992. *AIDS prevention in heterosexual contacts: Risk perception, intention and interaction.* Amsterdam: Swets and Zeitlinger.

Rogers, R.W. 1983. Cognitive and physiological processes in fear appeals and attitude change: A revised theory of protection motivation. In J.T. Cacioppo and J.T. Petty (Eds.) *Social psychophysiology, a source book.* New York: Guilford.

Rosenstock, I.M. and J.P. Kirscht. 1974. The health belief model and personal health behavior. *Health Education Monographs* 2: 470-473.

Rosenstock, I.M. and V.J. Strecher. 1994. The health belief model and HIV risk behavior. In J.L. Peterson and R.J. Diclemente (Eds.) *Preventing AIDS: Theories and methods of behavioral interventions*. New York: Plenum Press.

Rubin, G. 1975. The traffic in women: Notes on the "political economy of sex." In R. Reiter (Ed.) *Towards an anthropology of women.* New York: Monthly Review Press.

Safilios-Rothschild, C. 1990. Socio-economic determinants of the outcomes of women's income-generation in developing countries. In S. Parpart (Ed.) *Women, employment and the family in the international division of labour*. Philadelphia, Pennsylvania: Temple University Press.

Schoepf, B.G. 1998. Inscribing the body politic: Women and AIDS in Africa. In M. Lock and P. Kaufert (Eds.) *Pragmatic women and body politics.* Cambridge: Cambridge University Press.

Senkoro, K., et al. 2001. HIV incidence and HIV-associated mortality in a cohort of factory workers and their spouses in Tanzania 1991 through 1996. *Journal of Acquired Immune Deficiency Syndrome* 23(2): 194-202.

Smith, J. et al. 1999. Education attainment as a predictor of HIV risk in rural Uganda: Results from a population-based study. *International Journal of Sexually Transmitted Diseases and AIDS* 10: 452-459.

Standing, H. 1991. *Dependence and autonomy: Women's employment and the family in Calcutta.* London and New York: Routledge.

Standing, H. and M. Kisekka. 1989. *Sexual behavior in sub-Saharan Africa: A review and annotated bibliography*. London, UK: Overseas Development Administration.

Stata Corporation. 2003. Stata/SE 8.2 for Windows. College Station, Texas: Stata Corporation.

Ssali, A., T.G. Barton, G.M. Katongole and J. Seeley. 1992. Exploring sexual terminology in a vernacular in rural Uganda—Lessons for health education. Paper presented at VIII International Conference on AIDS, session 00255/D63.

UNAIDS/WHO. 2003. *AIDS epidemic update 2003*. Geneva: Joint United Nations Program on HIV/AIDS and World Health Organization.

UNICEF. 1998. *Children and women in Uganda: A situation analysis*. Kampala: UNICEF.

Varga, C. 1997. Sexual decision-making and negotiation in the midst of AIDS: Youth in KwaZulu-Natal, South Africa. *Health Transition Review* 7(suppl. 3): 45-67.

Verbrugge, L.M. 1985. Sex differentials in health. *Public Health Reports* 97: 417-437.

Verbrugge, L.M. 1989. The twain meet: Empirical explanations of sex differences in health and mortality. *Journal of Health and Social Behavior* 30: 282-304.

Vierich, H. 1986. Agricultural production, social status and intra-compound relationships. In J.L. Moock (Ed.) *Understanding Africa's rural households and farming systems*. Boulder, Co: Westview.

Vlassoff, C. 1994. Gender inequalities in health in the Third World: Uncharted ground. *Social Science and Medicine* 39(9): 1249-1259.

Whitehead, A. and N. Kabeer 2001. *Living with uncertainty: Gender, livelihoods and pro-poor growth in rural sub-Saharan Africa*. Institute of Development Studies Working Paper 134. Brighton, UK: Institute of Development Studies.

Whitehead, A. 1991. Women in food production in sub-Saharan Africa. In A. Sen and J. Dreeze (Eds.) *The political economy of hunger.* Oxford: Clarendon Press.